

1 ABSTRACT

2 The present invention provides a sound activated detection  
3 system disposed within the conveyor and/or hammer roll area of  
4 a reduction mill for detecting unshredable materials fed into  
5 the machine. More specifically, an embodiment of this  
6 invention comprises a unshredable debris detector disposed in  
7 operative relationship in the material input path and includes  
8 a transducer, preferably a piezoelectric crystal, acoustically  
9 coupled to a sensing surface disposed transversely across a  
10 portion of the input path. Alternative embodiments may include  
11 one or more accelerometers, microphones, or other vibration or  
12 acoustic sensors either alone or in conjunction with the  
13 transducer for detecting the unshredable material. The present  
14 invention further features a conveyor system wherein the  
15 conveyor(s) are automatically reversed for a predetermined  
16 amount of time when a unshredable object is detected. The  
17 reversal of the direction of movement of the endless  
18 conveyor(s) allows the unshredable object, which could damage  
19 the equipment, to be removed from the waste material.

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